



MCS Response to 'Proposals for a Future Systems Operator Role'

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1 – About you

MCS Charitable Foundation

Our vision is a world where everyone has access to affordable and reliable renewable energy and zero carbon technologies – for the benefit of our environment, our communities and the general public. As a Foundation we work to increase public confidence, awareness and access to renewable energy and zero carbon solutions across the UK. We support education and engagement programmes, fund research and facilitate innovative solutions to drive widespread adoption. In addition, the Foundation oversees the [Microgeneration Certification Scheme \(MCS\)](#) which defines, maintains and improves quality standards for renewable energy at buildings scale.

MCS (MCS Service Company Ltd)

Since 2008, MCS has been the only recognised Standard for UK products and their installation in the small-scale renewables sector. It is a mark of quality. We create and maintain standards that allows for the certification of low-carbon products and installers used to produce electricity and heat from renewable sources. We are impartial: technology neutral, manufacturer neutral, and supportive of Installers committed to quality installations and consumer protection. Membership of MCS demonstrates adherence to recognised industry standards, highlighting quality, competency and compliance. Our mission is to give people confidence in low-carbon energy technology by defining, maintaining and improving quality.

We are happy for our consultation response to be published

We would like to be contacted when the consultation response is published

I am replying on behalf of my organisation



Summary

MCS recognises the need for more strategic oversight and coordination across the energy sector. However, these proposals and the assumptions behind them are too uncritical of the ESO and are therefore overly optimistic about the extent to which the ESO's current operations provide a strong foundation for the new roles being considered.

Response

1. Do you agree that net zero will create the need for new technical roles in the electricity and gas systems, and require a new approach to energy system governance?

MCS agrees that increased capability to plan and coordinate network reinforcement and flexibility markets across the electricity transmission and distribution networks will be needed. This is also true of coordinating, analysis and publishing energy data. Further, we agree that new hydrogen networks may in future require a new technical system operation role.

2. Do you agree that the establishment of a Future System Operator is needed to fulfil the kinds of technical roles needed to drive net zero?

MCS agrees that neither Ofgem nor the individual regulated system or network operators are currently structured in a way to take on these more coordinating roles.

3. Do you agree that a Future System Operator should have roles in both the electricity and gas systems?

MCS agrees that an FSO should be able to coordinate across electricity and gas.

We would note that this is unlikely to be the entirety of the energy system however. In future, heat networks are likely to constitute a significant part of heating and hydrogen networks may be distinct from the gas network. It is important that this is taken into consideration when considering the FSO's detailed roles and ability to provide a strategic view of the entire system.

4. Do you agree that a Future System Operator should be entirely separate from National Grid plc?

MCS agrees.

Further to this, we would question this consultation's rather uncritical assessment of the ESO's current ability to consider system operations and different technologies and approaches. The ESO has historically and continues to be relatively weak at understanding and engaging with the demand-side response industry. Whilst Power Responsive and other fora are positive, there are examples where reforms have been or are being undertaken with little appetite from the core of the business, including the Control Room, to enable greater DSR participation in markets and a tendency to be quite rigid in requiring require DSR to fit into existing processes designed for large generation, whether appropriate or no.

This is important for two reasons. Firstly, ESO's own Future Energy Scenarios show significant growth in DSR across all scenarios. Therefore, understanding this part of the market is likely to be important for the FSO role. Secondly, it indicates a broader,



more strategic weakness to engage with and understand parts of the energy system that may be smaller or use different business models to the large-scale generation (whether fossil-fuel or renewable) that the ESO are more familiar with.

Secondly, the ESO have also traditionally been relatively conservative and slow to embrace digitalisation. Progress towards the use of APIs in flexibility markets, for example, was slow and ultimately significantly later than promised. This is also the case with the portal developed and owned by the ESO in its role as EMR Delivery Body for the Capacity Market which is manually intensive and not very automated.

Finally, the ESO is often quite unstructured and weak in its approach to industry engagement and the management of market reforms. Whilst it often holds workshops and runs regular forums, it rarely publishes a full assessment or justification for the market design decisions it makes. Its approach to the use of consultations and publishing feedback from those consultations is also often very variable. Further to this, its programme management often suffers from quite poor communication with stakeholders (for example, communications about changes to a market at very short notice) and delays.

Legal separation and the introduction of the Performance Panel have been positive in recent years in highlighting some of these areas. However, they still remain and will need to be considered carefully if this reform results in a wider and more influential role for the ESO.

5. What issues are there with existing institutional arrangements in the UK energy system in relation to system-wide decision-making and planning?

Firstly, there has to date been quite weak information collection and sharing between the ESO and the distribution network operators. In some cases, this has meant that neither party has effective oversight of aspects of the entire electricity system (for example, growth in different types of electricity asset). This is improving somewhat but the need to understand in much more depth current and likely future market activity at smaller scales will become much more important as the uptake of heat pumps and EVs become significant to overall and local system balancing.

Secondly, there has not been coherent strategies in place across BEIS, Ofgem, the ESO and network operators on key questions such as the role of flexibility. This has prompted incremental and patchy approaches by different actors without a common objective and too little understanding of the interactions of the impact of these institutions' decisions for the sector.

Thirdly, heat networks remain quite separate from decision-making and planning in the electricity and gas systems. As heat networks grow over time to a significant proportion of overall heat demand, they will need to be better integrated.

6. What examples/case studies are you aware of where net zero delivery in one part of the energy system did not adequately account for cross-system impacts or costs?

One example is how the price controls are structured to allow for network or flexibility solutions from one licensee to benefit another licensee. It is quite difficult through the price controls at present for revenue or savings against one licensee's baseline targets to be transferred to another licensee - for example, where one licensee has invested in a flexibility service that then removes the need for reinforcement upstream and so results in a saving and revenue for that latter licensee.



Another is that there is currently not sufficient policy coordination between the development of DSO functions, including the procurement of flexibility from generation, storage and demand, and the future role of the Balancing Mechanism and national constraint management. In future, it may be that a single Balancing Mechanism is needed or at least a more coordinated way in which constraints at different voltage levels can be managed and resolved.

7. Where should government focus in our efforts to improve systems thinking and coordination across the energy system?

MCS considers that the Government's focus should be -

- BEIS and Ofgem providing clearer strategic direction.
- Continuing to improve data collection, sharing and publication across the energy system.
- Continuing to place tougher and more explicit obligations on the system and network operators and other parties to assess the cross-system impacts of their decisions and to ensure options other than those directly under that party's control are considered fully.

8. Do you agree that the FSO should undertake all the existing roles and functions of NGESO? If not, please explain why.

MCS agrees.

9. Do you agree there is a case for the FSO to undertake the long-term strategic functions outlined in Option 1? Please elaborate and provide any views on the functions we have outlined in Option 1.

MCS agrees.

10. Do you agree that there is not currently a case for the FSO to undertake all GSO roles and functions, including real-time gas system operation, as outlined in Option 2? If you do not agree, please explain why.

Overall, MCS agrees.

MCS considers that the separation of the ESO from the transmission owner arguably suffers from the same risk outlined here of new inefficiencies emerging where, for example, assets are used more intensively for systems operation and as a result, maintenance costs increase.

Therefore, this should not be a reason in of itself not to separate this function from National Grid Gas.

However, MCS does agree that there could be risks to safety from separating gas system and physical asset operation.

MCS supports Ofgem and BEIS' work to explore whether more information can be shared between the GSO and ESO Control Rooms in the meantime and ahead of any decision on separating out real-time gas system operations in the long-term.

11. Do you have views on the proposal for an advisory role? What organisations do you consider would benefit from the provision of advice by the FSO? Who should bear the costs of providing that advice?



MCS would not currently support the proposal FSO, particularly if these roles are given to the ESO, playing a stronger advisory role to Government as it stands.

This is for several reasons.

Firstly, the ESO has relatively poor understanding and modelling capabilities with respect to parts of the market. The example given in the consultation of heat is one such notable example. Heat will be more regional than the electricity system as we transition to net zero. However, this year was the first in which the Future Energy Scenarios, for example, began to explore this and build up its modelling capability in this area. Further, the modelling for heat sectors such as heat networks has to date been quite poor with often incorrect assumptions being applied. The ESO has much more insight and capability with respect to the larger generation and supply sides of the market. However, the risk is that this difference in expertise skews their insights and advice.

Secondly, the structure and obligations on the ESO regarding industry engagement are much less rigorous than that for BEIS and Ofgem. If this remains as is with the introduction of a much more influential advisory role for the ESO, it could risk the ESO being able to form advice to Government that has not been subject to appropriate and transparent consultation and engagement with industry.

12. Do you have any views on the other areas where we are considering new and enhanced roles and functions for the FSO (outlined in section 3.2)?

MCS agrees that a coordinating body able to transfer funds between the gas and electricity networks for whole system projects could be valuable. However, these transfers could also equally be between systems operations and network operations. Therefore, careful consideration will be needed as to how this would be done if the coordinating body is also the/one of the system operator(s).

MCS would strongly disagree with a FSO taking on a greater role in the design of energy markets unless that body is under much stronger obligations and scrutiny for the transparency and robustness of its consultation and decision-making processes (as set out above). If it were to take on this role, it would need to be subject to the equivalent obligations as BEIS or Ofgem; for example, being required to publish consultations, consultation responses and impact assessments etc. for major decisions.

MCS would not support an FSO taking on new DSO functions in the future and particularly not those relating to the development and procurement of flexibility.

MCS provisionally supports the proposal for an FSO to provide a coordinating function to national level for local energy mapping. However, it remains important that local energy mapping itself is undertaken by bodies with local democratic accountability.

MCS would support the FSO in the diversification of green hydrogen projects only. Any strategy that is reliant on fossil fuel derived blue hydrogen's emissions being stored in currently non-existent CCUS facilities is clearly not compatible with the UK's Net Zero goals. We strongly urge Government to abandon the blue hydrogen track, and redirect the £240m Net Zero Hydrogen Fund to green hydrogen development only.

CCS is a yet to be deployed technology in the UK. We have seen examples of where the costs of building and running CCS are expensive and those costs would be added to



the fuel cost. CCS has failed to deliver on its promises research¹ shows. Despite three decades of significant financial support, only 34 Mt CO₂/yr of CCS were in operation in 2019, achieving just 1% of targeted capacity as set out in the IPCC CCS report in 2005. In their paper, the authors reflect on thirty years of CCS projects and note:

- 1) "the almost complete withdrawal of CCUS in the European Union and numerous project cancellations in Australia, Canada, China, and the United States."
- 2) The EU wanted to set up 12 CCUS projects by 2015. Yet and despite significant funding the EU failed to award a single CCUS demonstration project.
- 3) There has been halting of investment and declining effort on CCUS deployment after 2013. Little additional capacity is expected from 2019 to 2022 – at precisely the time that modelling from the Global CCS Institute suggests the need for 75-100 new plants be developed annually to meet the IEA-SDS emission capture rates to meet the Paris Accord goals.
- 4) "Of all large-scale pilot and demonstration plants, i.e., those with a project size greater than 0.3 Mt CO₂ per year, 78% have been cancelled or put on hold."
- 5) Low carbon prices are identified as a critical factor holding back investment in CCS. With carbon prices rising sharply in Europe, the question remains as to whether this will trigger significantly more investment in CCS or not.

Key information

- 2010 - Government conducts a 'market sounding' exercise to explore workable options for a CCS demonstration project
- In 2012, Government committed £125 for research and up to £1bn for development costs²
- In 2020, a further £800m was committed in the budget for CCS development projects
- As of July 2021, the UK still has no operational, large-scale CCS facility – the first is not due to open until 2027 at the earliest
- During this time, the Green Deal was introduced and withdrawn, the solar PV feed-in-tariff was introduced and withdrawn and replaced by the much less generous Smart Export Guarantee, the Green Homes Grant was introduced and withdrawn, the RHI was introduced and will close in March 2022 with no successor in place
- By contrast, during the period 2010-2020 a focus on supportive, long-term policy measures to support low-carbon heating saw France install close to 2,500,000 heat pumps compared to 250,000 in the UK during the same period.

CCS Case Studies

Petra Nova - USA

Petra Nova was the only coal carbon capture project in the United States. The CCS technology at Petra Nova required so much energy that NRG built an entirely separate natural gas power plant—the emissions of which were not offset by the Petra Nova technology—just to power the scrubber designed to

¹ <https://www.sciencedirect.com/science/article/abs/pii/S030142152100416X>

² <https://www.gov.uk/government/news/ccs-competition-launched-as-government-sets-out-long-term-plans>



remove the CO₂ emissions. In the end, the \$1 billion project captured only 7% of power plant's carbon emissions³. The plant was closed permanently in early 2021

Kemper – USA

Kemper was intended to be a coal carbon capture project. Construction began in 2010. However as a result of a series of design flaws, construction was delayed and costs ballooned from an initial budget of \$2.4bn to an even more eye-watering \$7.5bn^{4,5}. The project was eventually abandoned in 2017. Kemper was intended to be a 582Mw 'clean coal' project, turning low-grade lignite into synthetic gas to fuel the electricity turbines. Instead, it turned into an expensive white elephant that never came online, further highlighting the risks associated with pursuing a decarbonisation strategy that relies on CCS.

Gorgon LNG plan – West Australia

Gorgon LNG plant in West Australia – the world's largest CCS project devoted to capturing greenhouse gas emissions rather than enhancing oil recovery opened in 2019, three years behind schedule. It was only granted planning permission on the basis of capturing 80% of its emissions through CCS, cost over \$3bn and captured barely 30% of emissions.⁶

13. What are your views on our proposed characteristics and attributes of a future system operator and how the models presented would deliver against them? Are there other characteristics or attributes that we have not yet considered?

MCS supports the proposed characteristics; namely, being technically expert; operationally excellent; accountable to consumers and able to support the delivery of net zero on behalf of the public; independently minded; and resilient, both operationally and financially.

MCS also supports the proposed attributes.

With respect to whether a standalone privately owned model or a highly independent public sector model would be better, MCS does not have a strong view. MCS would note only that the FSO's revenue base is likely to be very similar to the ESO's and focused much more on margin on service provision (for example, efficient operations, data management, advisory services). This has already created situations where the ESO has been very hesitant of taking on cash flow risk; for example, in relation to under- or over-recovery of BSUoS. This might indicate that the private model is not ideal.

14. Are we considering the right organisation models for the FSO? And why?

MCS agrees that the two models under consideration are the right ones.

³ <https://www.energyandpolicy.org/petra-nova/>

⁴ <https://www.theguardian.com/environment/2018/mar/02/clean-coal-america-kemper-power-plant>

⁵ <https://mcpolicy.org/two-years-since-kemper-clean-coal-project-ended/>

⁶ <https://www.energyvoice.com/oilandgas/asia/337852/chevron-fails-to-hit-targets-with-giant-ccs-scheme-at-gorgon-lng/>



15.Are we considering the right elements for the FSO's regulatory and accountability frameworks? And why?

MCS agrees with the elements identified.

Regarding funding, the ESO currently accesses its funding through BSUoS charges on electricity. If the FSO's role crosses gas and electricity, transmission and distribution as well as new areas such as hydrogen and CCUS, it should be reviewed whether electricity should continue to shoulder the entire burden of these costs or whether it should be more broadly socialised.

16.Do you have views on the level of shareholding or control involving other 'energy interests' and the FSO at which a conflict of interest would become a concern?

MCS does not have views on this question.

17.Are we considering the right implications of our proposals for Elexon and Xoserve?

MCS agrees. In particular, and as set out separately in the energy codes consultation, an increased role for an FSO in code governance could have a very significant impact on Elexon.

18.What is your view on the preferred implementation approach? Please explain why.

MCS provisionally supports the preferred approach of developing the FSO from the ESO and some GSO functions.

However, and as stated above, there are considerable improvements and shifts in culture that are needed for the ESO to take on such an expanded role. This should not be underestimated when planning this shift and robust measures need to be put in place to ensure accountability and transparency ahead of the ESO taking on more functions.

19.Based on the areas where we are considering new and enhanced roles and functions for the FSO, which of these should be prioritised for development? Please explain why.

MCS would prioritise -

- Network coordination across electricity and gas, and across distribution and transmission.
- Improved information-sharing between the gas and electricity Control Rooms.
- Coordinating the national impacts of local area energy planning.

20.What do you believe are the risks to implementation? How can these be mitigated?

See question 18.

21.Do you have any comments on potential implications of implementation



for you, your organisation, or other stakeholders?

As aforementioned, we consider that the ESO has considerable weaknesses currently in its understanding of some of the sectors MCS represents (notably, DSR and heat networks) and its approach to consultation and transparent decision-making.

Creating a more influential role for the ESO without addressing these issues could risk unfair and inefficient decisions on market design and policy.

22. What is your view on the position there are likely to be cost savings across the energy system from an increased “whole system” view, as described in paragraphs 47-52 of the IA? If so, is the potential magnitude of savings illustrated fairly in the IA? If not, why not?

MCS considers that there are likely to be cost savings from a greater “whole system” view. However, MCS does not have a view on the likely magnitude of these savings.

23. What is your view on the conclusion that policy intervention is likely to increase the benefits of onshore electricity network competition, as described in paragraphs 53- 59 of the IA? If you agree, is the potential magnitude of savings illustrated fairly in the IA? If not, why not?

MCS does not have a view on this question.

24. Do you think that the impact assessment has identified and considered the key costs and benefits of policy intervention? If not, can you provide details on other impacts that have not been considered?

If the FSO were able to take a more innovative and more sophisticated approach to data management and digitalisation than the current structures, this could provide benefits. This does not seem to be covered in the impact assessment.

As set out above, a key risk not explicitly considered within the impact assessment is the ESO’s legacy culture and its at times weaknesses in engaging with new business models or technologies. Further to this, the ESO’s legacy IT systems are already proving difficult to upgrade sufficiently quickly to meet the challenges it is facing. To give one example, the minimum limit of 1MW is hardwired into the ESO’s IT systems currently and cannot be lowered without significant IT upgrades. This presents real risks with its ability to manage a system with increasing growth in smaller, flexible power assets.

25. Do you think that the distribution of impacts is fairly represented, with impacted groups correctly identified? Outlined in table 5 of the IA.

As set out above, the impact on energy firms is unlikely to be homogeneous given the ESO’s better familiarity with some parts of the market compared to others. This is not brought out in the distributional impacts.

26. We invite respondents' views on whether the proposals for energy system governance reform may have a different impact on people who have a protected characteristic (age, disability, gender re-assignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex or sexual



orientation), in different ways from people who don't have that characteristic. Please provide any evidence that may be useful to assist with our analysis of policy impacts.

MCS does not have a view on this question.

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